

REMARKS

This reply is filed in response to the Office Action dated July 14, 2010.

Applicants have amended claims 16 and 19 to more clearly point out the claimed subject matter. No new matter has been introduced.

Upon entry of the present amendment, claims 14-16, 18-20, 31-36, 45, 47, 48 and 53-56 will be pending. In view of the remarks below, Applicants respectfully request reconsideration of the pending claims.

Information Disclosure Statement

The Examiner points out that two Japanese references submitted with the Information Disclosure Statement were not accompanied by English translations or any concise explanations of their relevance. See page 2 of the Office Action. Applicants submit herewith another Information Disclosure Statement to rectify this deficiency.

Rejection under 35 U.S.C. § 112, First Paragraph

The Examiner rejects claims 14-16, 18-20, 31-36 and 53-56 as being not adequately enabled.

Claim 14 is drawn to a method for producing a fermentation product from starch-containing produce. The method includes a dual-enzyme treatment process to obtain a glucose-rich syrup, with proteins removed, and a culturing process to grow a microorganism in this glucose-rich syrup as is.

According to the Examiner, the specification, while enabling a method for producing non-nitrogen containing fermentation products, fails to enable production of nitrogen-containing fermentation products such as amino acids.

The Examiner points out that claim 14 specifies growing a microorganism in the recited glucose-rich syrup as is, so does not cover adding additional nutrients to the glucose-rich syrup. See the Office Action, at page 5, lines 3-4. He also refers to a disclosure in the present specification (at page 4, lines 9-12), which teaches that additional nitrogen sources should be added to the glucose-rich syrup in order to produce amino acids. See the Office Action, at page 5, lines 5-8. The Examiner thus concludes

that the method of claim 14, using the glucose-rich syrup as is, would not be able to produce nitrogen-containing fermentation products such as amino acids. Since claim 14 does not recite amino acids, and in view of the above-referenced passage from the specification, those of ordinary skill in the art would understand that the fermentation products recited in claim 14 do not include amino acids. Thus, Applicants submit that claim 14 satisfies the enablement requirement.

It appears the Examiner is actually taking issue with the recitation of amino acids in claims 16 and 19 (depending from claim 14), which is inconsistent with the scope of claim 14. Applicants have amended claims 16 and 19 to remove the recitation of amino acids. The remaining fermentation products recited in claims 16 and 19 are nitrogen-free. In view of these amendments, Applicants submit that claim 14 and all claims depending from it are enabled.

For the reasons stated above, the present claims satisfy the enablement requirement.

Rejection under 35 U.S.C. § 103

The Examiner rejects claims 14-16, 18-20, 31-36, 45, 47, 48 and 53-56 as obvious over Shaw et al. ("Shaw") in view of Seidman et al. ("Seidman"), Jones et al. ("Jones"), Nutrient Facts on Glutinous Rice ("Nutrient Facts"), Javabainen et al. ("Javabainen"), and Skory et al. ("Skory").

The grounds for this rejection are essentially the same as those stated in the previous Office Action, except for two. First, the Examiner cites a disclosure in Javabainen that allegedly shows that microorganisms can carry out fermentation in a medium without a nitrogen source. See the Office Action, at page 3, third paragraph. Second, he further asserts that the small amount of vitamin B in rice is a sufficient source of nitrogen, contrary to what is stated in the declaration of co-inventor Dr. Guan-Chiun Lee ("Declaration"), submitted with the response filed May 4, 2010 ("May 4 reply"). See the Office Action, page 3, second paragraph.

Applicants respectfully traverse.

As noted above, claim 14 is drawn to a method for producing a fermentation product from starch-containing produce by growing a microorganism in the recited glucose-rich syrup as is, with proteins removed.

Before addressing the two new grounds for rejection, Applicants would like to discuss the previously cited references, Shaw, Seidman, Jones, Nutrient Facts and Skory. The disclosures of these references were discussed in the reply filed on May 4, 2010, so Applicants will not reiterate them herein. Rather, Applicants would like to simply point out that none of Shaw, Seidman, Jones, and Nutrient Facts even mentions growing microorganisms, thus providing no suggestion or whatsoever that would have led those of ordinary skill to grow a microorganism in a glucose-rich syrup with protein removed. Skory describes fermentation using *Aspergillus* and *Rhizopus* grown in YPM, i.e., yeast extract, peptone and malt extract. See page 203, right column, last paragraph. As yeast extract contains the cellular content of yeast cells, it includes numerous nutrients, such as proteins and other nitrogen sources. Peptone, derived from animal milk or meat digested by proteolytic digestion, is also a protein source. Clearly, there is nothing in Skory to suggest growing microorganisms in a glucose-rich syrup without proteins to produce a fermentation product.

Applicants now turn to the two new grounds for rejection.

First, the Examiner's reliance on Javabainen for suggesting that microorganisms can carry our fermentation in a medium without a nitrogen source is misplaced. This new reference describes preparing a barley flour medium from barley flour without additional nutrients. See page 544, second paragraph. However, Javabainen does not disclose removal of proteins from this barley flour medium, so the medium indeed includes proteins, i.e., a major nitrogen source. A listing of the nutritional contents of barley flour is provided as "Exhibit A" to show its high protein content. Thus, contrary to the Examiner's assertion, Javabainen does not suggest carrying out fermentation in a medium without a nitrogen source, e.g., proteins.

Second, the Examiner's rebuttal of the evidence provided in the Declaration is unsupported. As stated in the Declaration, protein is the major nitrogen-containing

nutrients in rice and other nitrogen-containing nutrients, i.e., B vitamins, are scarce in rice, i.e., around 0.02% by weight. See page 2, third paragraph. Therefore, a sugar-rich syrup with protein removed is deficient in nitrogen-containing nutrients. However, the Examiner contends that (at page 3, second paragraph):

It is acknowledged that the amount of nitrogen provided by vitamin B complex present in the milled rice would be far less than that provided by amino acids or proteins of white rice (unmilled rice). However, this does not conclude that the amount is not sufficient for microorganisms to use vitamin B complex as a source for nitrogen. While it may not be sufficient in certain conditions, however, it can be a source for nitrogen.

Applicants respectfully disagree. The pertinent question is not whether the scant amount of vitamin B in a protein-free sugar-rich medium **can** support microorganism growth, it is whether a person of ordinary skill in the art **would have believed** that such a medium **can** be used to grow microorganisms.¹ The Declaration explains why they would not have done so. None of the references cited by the Examiner suggest it is possible to grow microorganisms in a medium without proteins, as discussed above. Thus, the evidence on record as a whole support the Applicants' position that the claimed method would not have been obvious. The Examiner has not pointed to any evidence to sustain his contention.

In view of the foregoing, Applicants submit that the claims are not obvious. Reconsideration and withdrawal of this rejection are respectfully requested.

CONCLUSION

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment.

¹ In hindsight, based on the disclosure of the present specification, microorganisms can indeed carry out fermentation in a glucose-rich medium with proteins removed. However, the Examiner has not pointed to any evidence to show that, **at the time of filing**, a person of ordinary skill in the art would have believed it to be possible.

Applicant(s) : Jei-Fu Shaw
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In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed.

Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fees are believed to be due. Please apply charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 70002-104001.

Respectfully submitted,

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Exhibit A

NUTRIENT FACTS

Search

[Foods / Cereal Grains and Pasta]

Barley Flour

1 Select a new unit value

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Nutrition Facts

Serving Size 1 cup (148 g)

Amount Per Serving

Calories 510 Calories from Fat 20

% Daily Value*

Total Fat 0g 4%

Saturated Fat 0g 2%

Cholesterol 0mg 0%

Sodium 5mg 0%

Total Carbohydrates 110g 37%

Dietary Fiber 15g 60%

Protein 16g 30%

Vitamin A 0% • Vitamin C 0%

Calcium 6% • Iron 20%

Zinc 20% • Thiamin 35%

Riboflavin 10% • Niacin 45%

Vitamin B-6 30% • Folate 4%

Vitamin B-12 0% • Phosphorus 45%

Magnesium 35% • Vitamin D 0%

* Percent Daily values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs

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